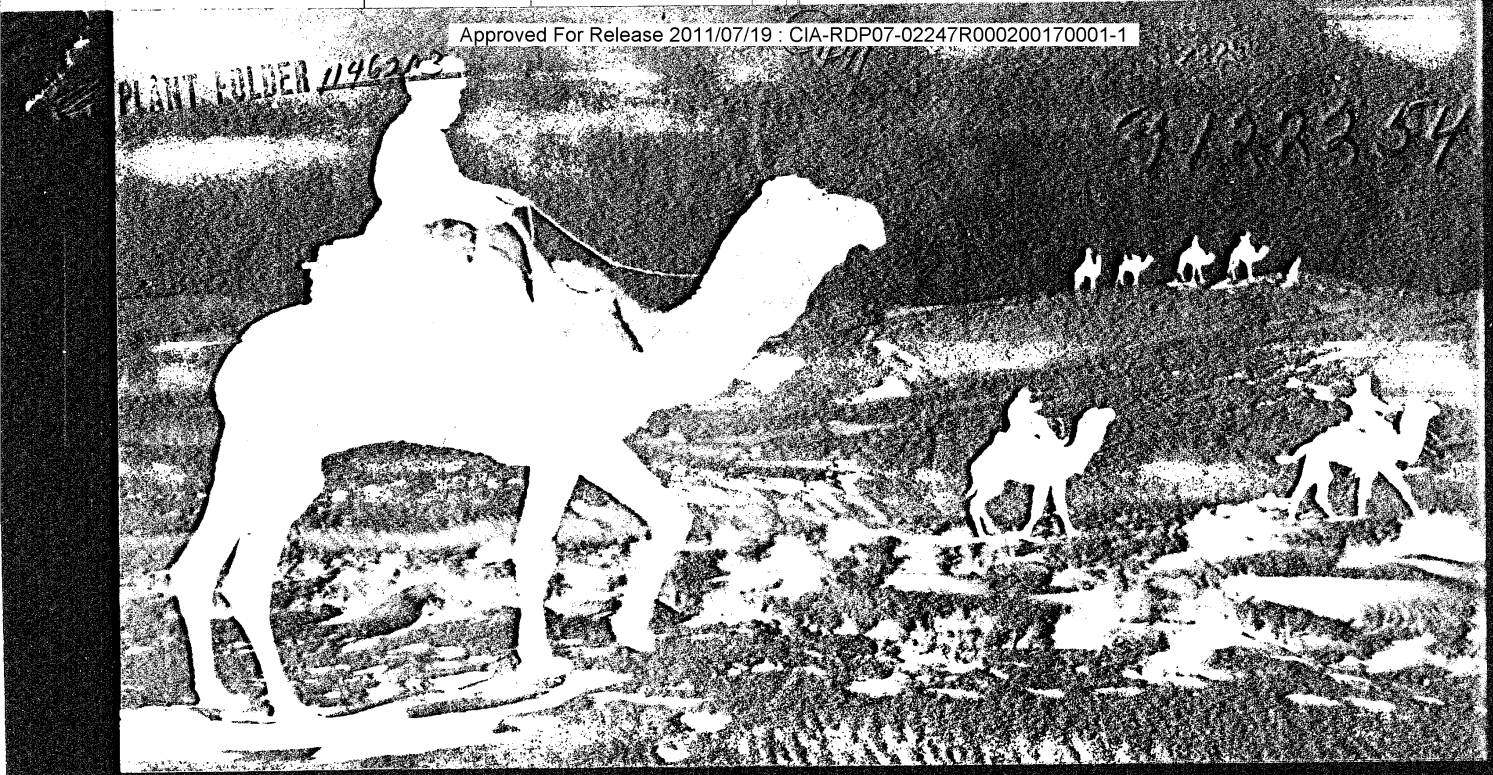


The "ship of the desert" has been put to a new use by afforestation workers in Kunya-Urgench district: riding camels they are sowing saksaul seed to anchor the shifting sands in the vicinity of the future Main Turkmen Canal

CONSTRUCTION IN THE DESERT

By S. KALIZHNYUK,
Chief of the Main
Turkmen Canal Construction Project

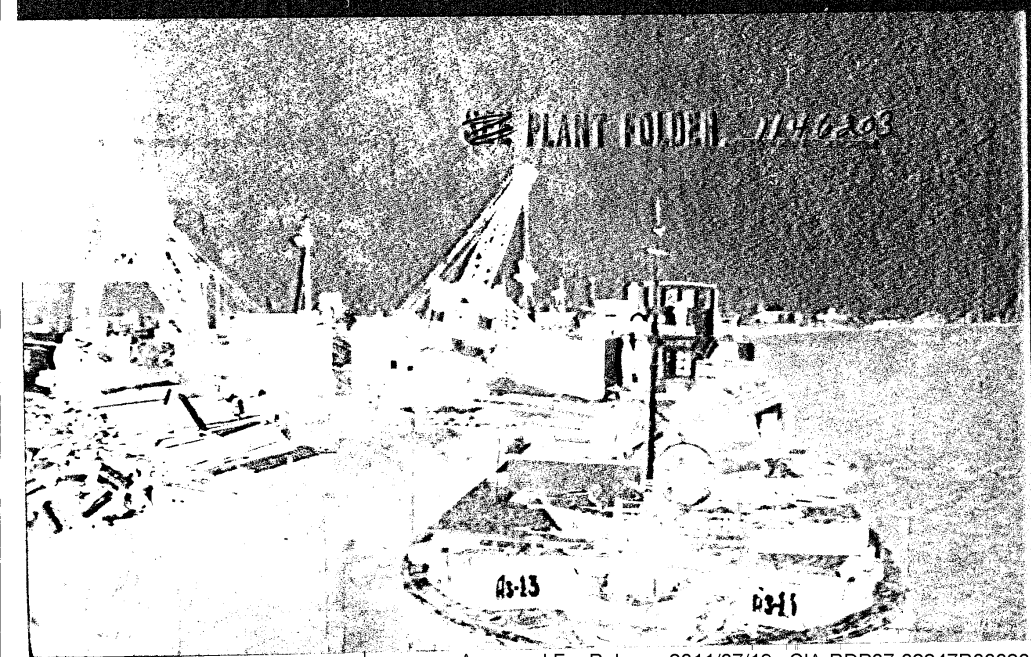
Photos by M. GRACHOV

Bulldozers at work clearing the way for roads to the construction sites

Deep-going changes in both natural features and economy will be effected over a vast area in Central Asia, says the decision passed by the Council of Ministers of the USSR on September 12, 1950, "On the Construction of the Main Turkmen Canal from the Amu Darya to Krasnovodsk, and the Irrigation and Watering of the Southern Districts of the Caspian Lowlands of Western Turkmenia, the Lower Reaches of the Amu Darya and the Western Part of the Kara Kum Desert."

The Amu Darya, one of Central Asia's greatest rivers, rises among the immense glaciers of the Alai range in the Pamirs. Once one of its branches flowed into the Caspian Sea. Where the Amu Darya flowed the country was densely populated. Orogenic processes, however, shifted its course to the northeast, and once fertile lands, left without water, turned into desert.

The Main Turkmen Canal is scheduled to irrigate about 1,300,000 hectares of desert country intended mainly for



An endless stream of the most diverse machinery is pouring to the canal site from all parts of the Soviet Union. The water-front scene on the left is in the port of Tahia Tash

cotton cultivation, and to provide a water supply for another 7,000,000 hectares of sandy wastes, which will be turned into pasture lands for Turkmen kolkhozes. Hydro-electric power plants will be built to provide cheap power to new industrial enterprises, towns and kolkhozes.

Gigantic as the scope of the project is, it is to be completed in five years time, by 1957.

This spring has seen a substantial expansion in the scale of work on this great construction undertaking of Communism. During the year and a half that have passed since the Government decision on the Main Turkmen Canal, a great deal has been accomplished along the route of the future waterway: settlements and roads have been built and a sawmill, machine shops and cultural and public service institutions have been set up. The work has been steadily picking up pace, as may be judged if only from the fact that the program for the last quarter of 1951 was considerably bigger than the sum total accomplished during the previous nine months. The plan was carried out well ahead of time and by the end of the year the builders had fulfilled an additional program of work besides.

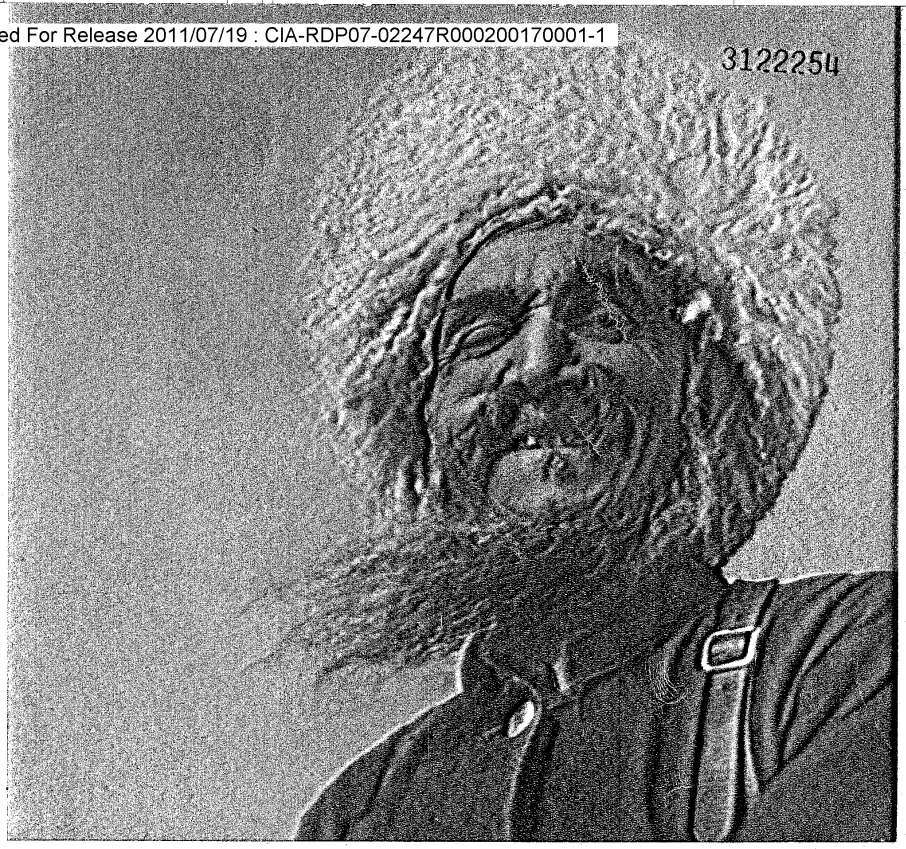
A still greater program faces the builders this year, which, incidentally, we call the year of preparation for the general offensive against the desert. And it will be a truly gigantic offensive. Apart from doing a good deal of building, we shall extend surveying and prospecting operations along the canal route. Numerous expeditions worked through the winter on the route from Tahia Tash to Krasnovodsk, studying the regime of the Amu Darya and the behaviour of the sands, and doing the groundwork for the final project. Much was also done to investigate natural local deposits of the building materials which will be needed in tremendous quantities in constructing the principal installations of the future waterway.

With the coming of spring the scale of surveying has increased still further. Research centres—institutes and academies—are also expanding their activities in conjunction with building work. For instance, the Academy of Sciences of the USSR sent a party of research workers to Tahia Tash on April 8. This group has already held a joint session with the Academies of Sciences of the Uzbek and Turkmen Republics to discuss problems connected with surveying, projecting and construction.

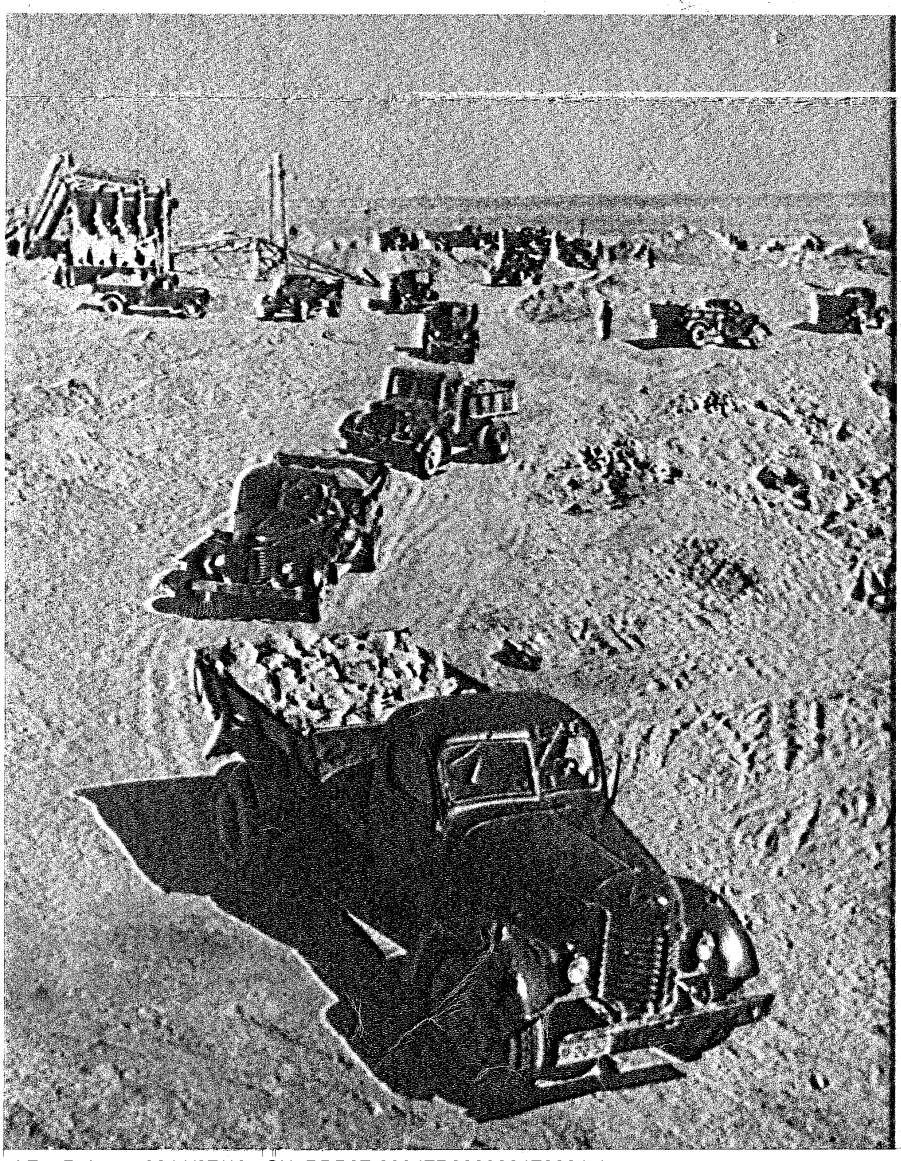
The 1,100-kilometre stretch of the Main Turkmen Canal, an irrigation network totalling over 60,000 kilometres in length is to be laid out. The enormous expanses of the great Central Asian desert, thus come to life, will have to be brought under cultivation, turned into plantations of cotton and other crops. This has posed substantial tasks before the Ministry of Forestry, which is to create great forest shelter belts and carry out large-scale afforestation to anchor the drifting sands. The Ministry of Cotton Growing of the USSR and other ministries and departments also have their work cut out for them.

Particularly intense is the activity on the key sections of the canal job. For instance, in Tahia Tash, which is to be the site of a major hydrotechnical development, new blocks of dwelling houses and cultural and public service institutions are being commissioned from month to month. By the end of March the place had acquired a bread factory, a large restaurant, a kindergarten as well as a bathhouse and laundry establishment. The water and sewer systems are being expanded.

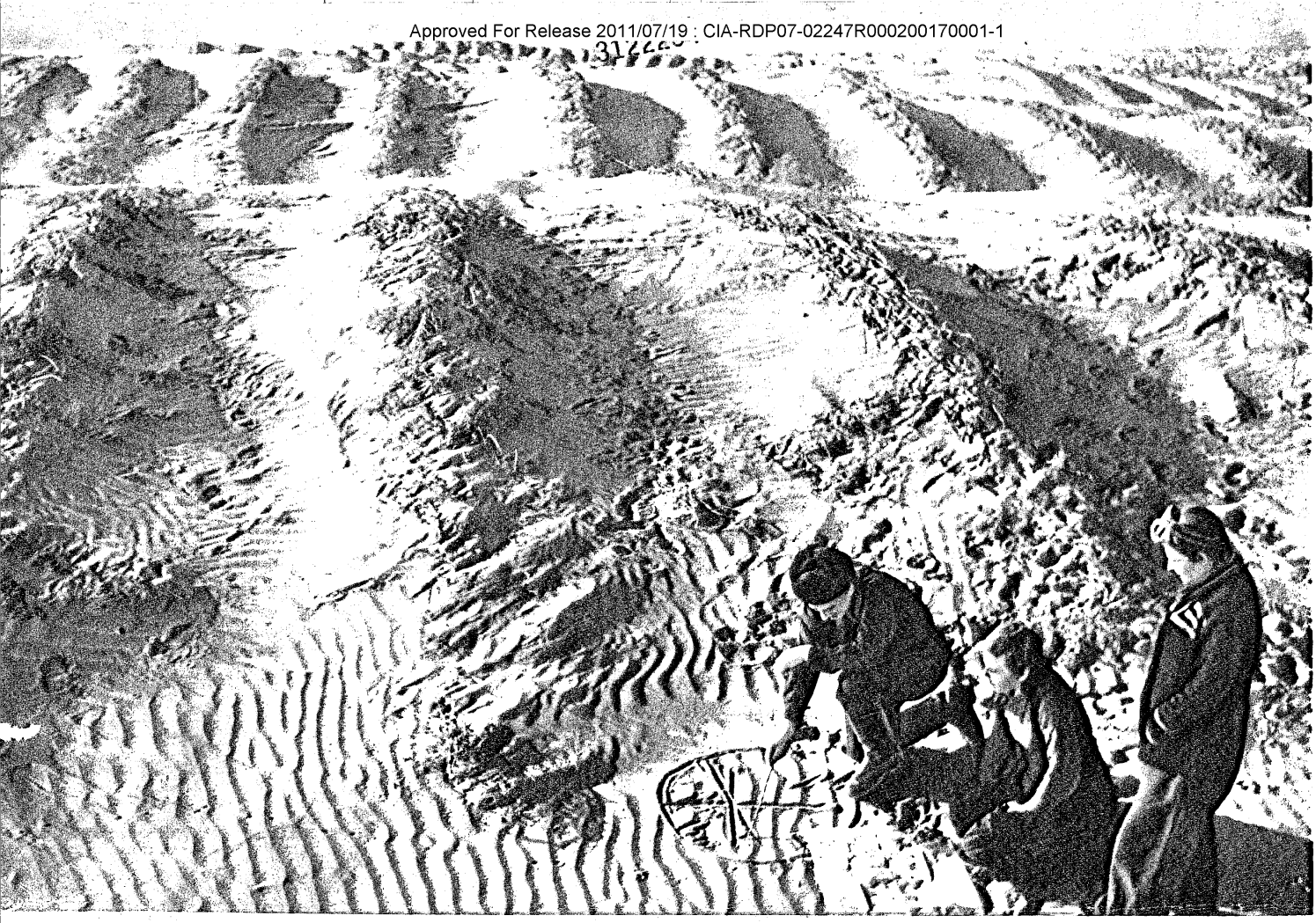
In Tahia Tash a club and other cultural amenities are being built. Following up the experimental planting of trees last autumn at this outpost on the edge of the Kara



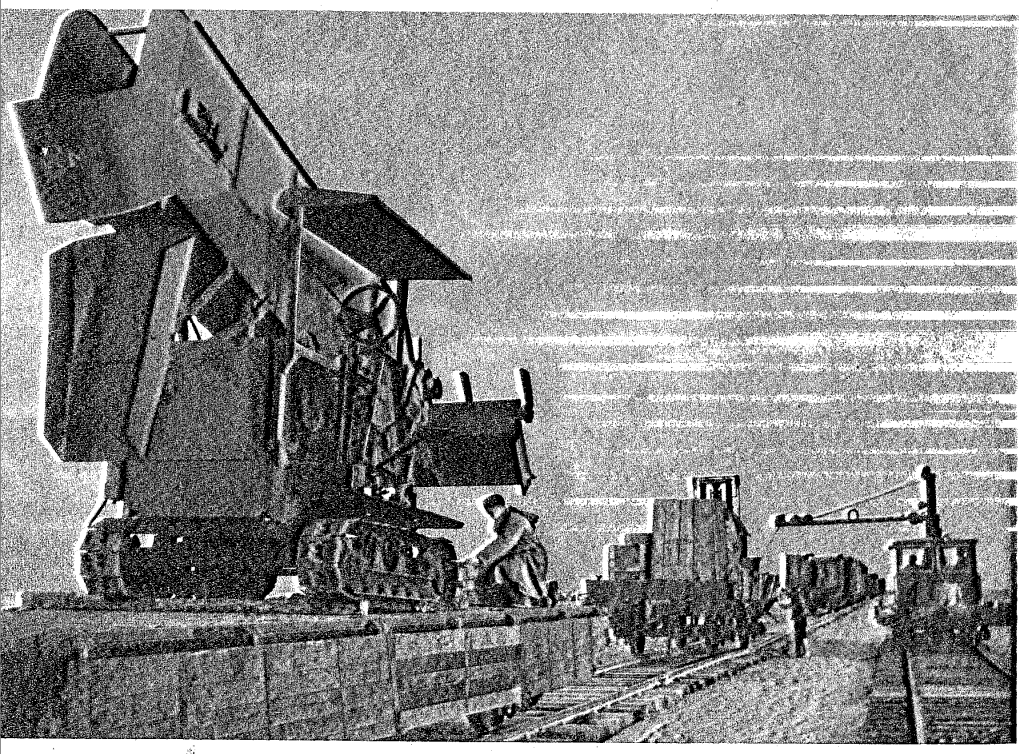
Nearly twenty-five years ago Aktelpek Nogiev took part in the famous ride from Ashkhabad to Moscow made by a group of Turkmenian horsemen. Now he is a brigade leader on one of the sections of the Soviet-Yab Canal construction job



Right: A stone quarry near Tahia Tash, which is to be the site of major hydrotechnical installations. Tipping lorries haul the stone to the construction site



Afforestation workers in Kunya-Urgench district check up on sand anchoring effected by last year's tree planting



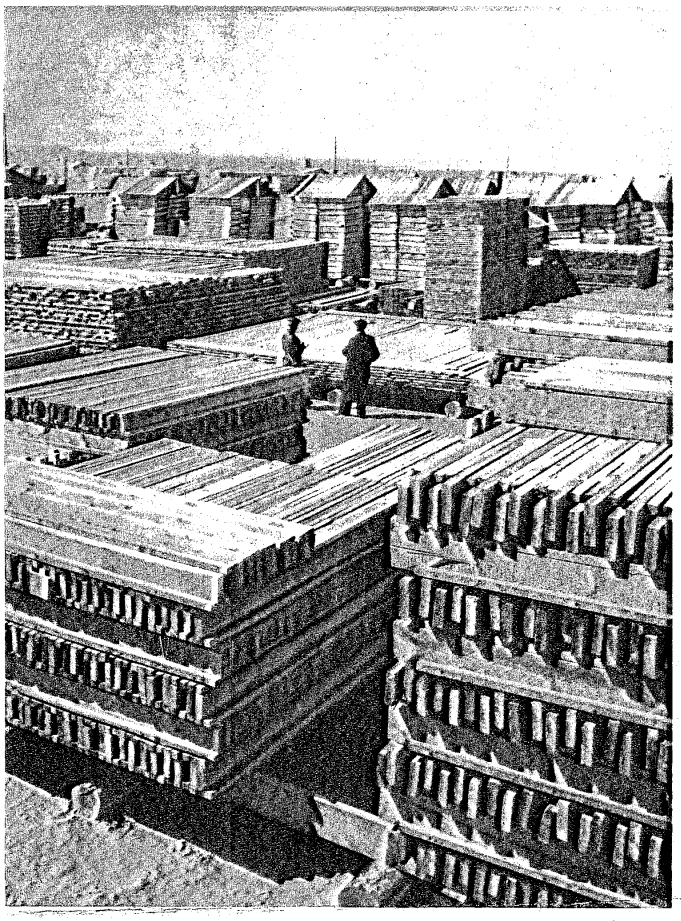
The newly-built railway has added another route to that provided by the Amu Darya River for supplying machines and materials to the construction site. Here a fresh consignment of machines is being unloaded in the freight yards

Kum, foresters will plant 250,000 trees of various kinds here this spring. From here the wooded belts will start their advance into the heart of the desert.

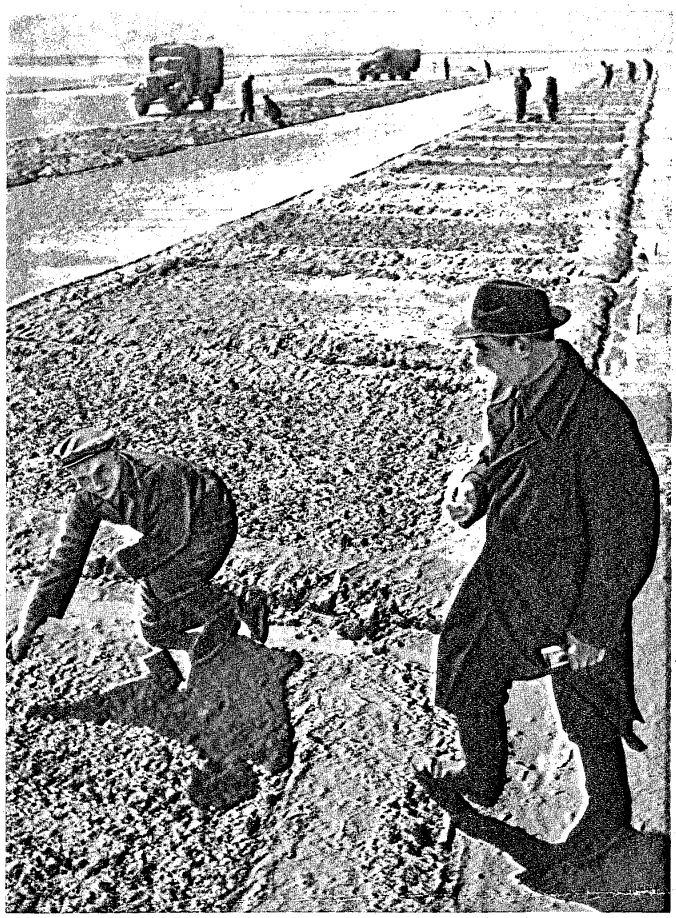
The theatre of operations is extending deeper and deeper into the Kara Kum proper. Construction work is being considerably expanded in Western Turkmenia where the town of Kazanjik is being built as a new hub of the building industry. Only half a year ago surveyors drove in the first stakes here to mark the routes of streets still to be created, and now whole blocks of dwelling houses, cultural and public service establishments, industrial plants and auxiliary enterprises of all kinds are going up, roads are being laid and a power plant built. In the nearby Kurin Dag Hills extraction of building materials has been started.

The Leningrad branch of the USSR Academy of Architecture is designing dwelling houses and public buildings for the new settlements to be set up along the canal route. Local climatic conditions and the specific features of Central Asian architecture are being taken into account in designing buildings. For instance, in view of the hot climate and the low precipitation, open premises for summer use are widely planned, particularly for office and other public buildings. Hospitals will have loggias and verandas protected from the wind, and cinema theatres will have open-air auditoriums which can be used for nine months of the year. A great deal of greenery is to be planted around both dwelling houses and public buildings.

This year work on the canal line and excavation at Tahia Tash will be started, and in preparation for this a huge amount of equipment of all kinds, including suction dredges, excavators, graders and bulldozers, have already been delivered to the construction site, and the electric power

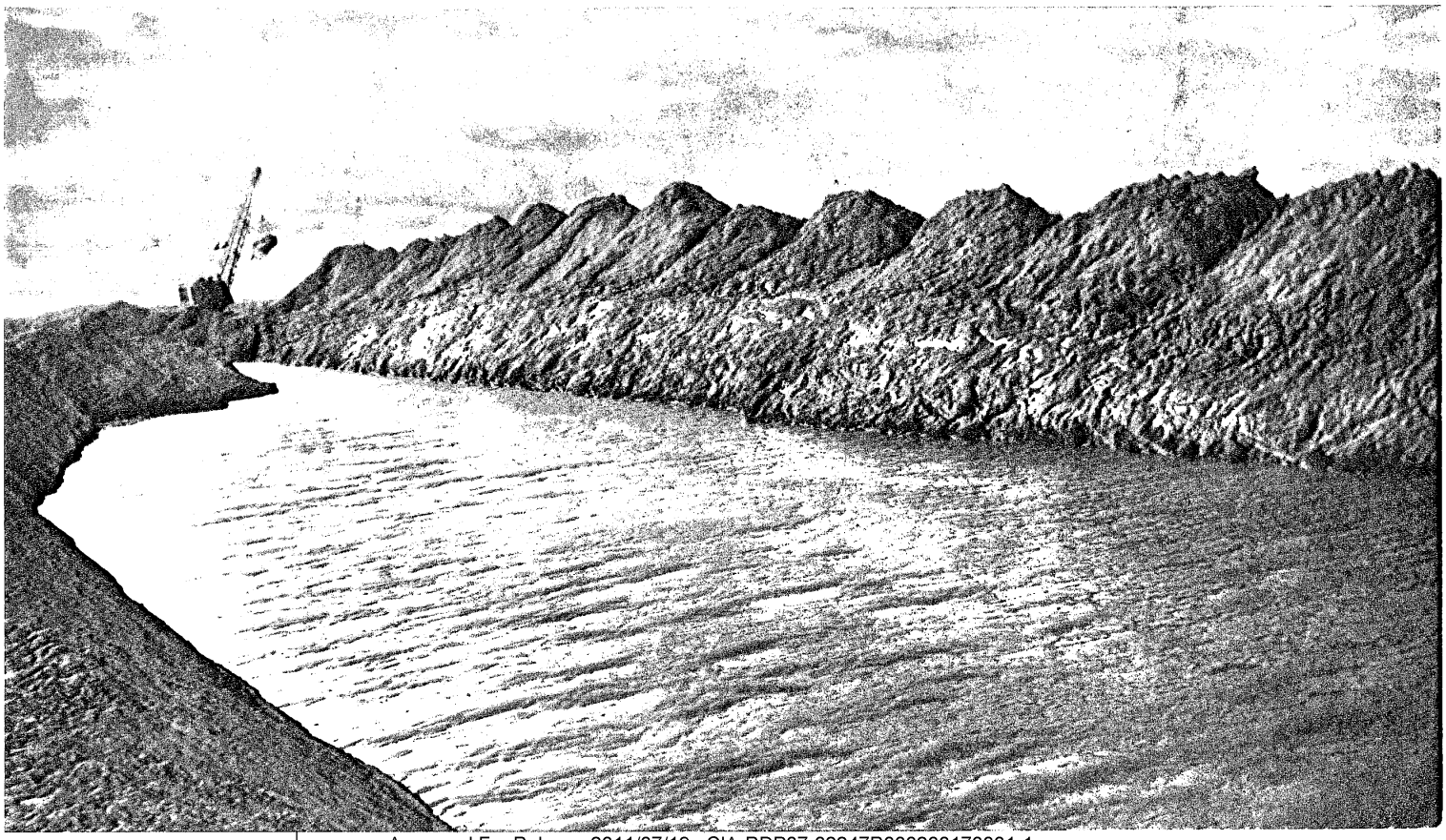


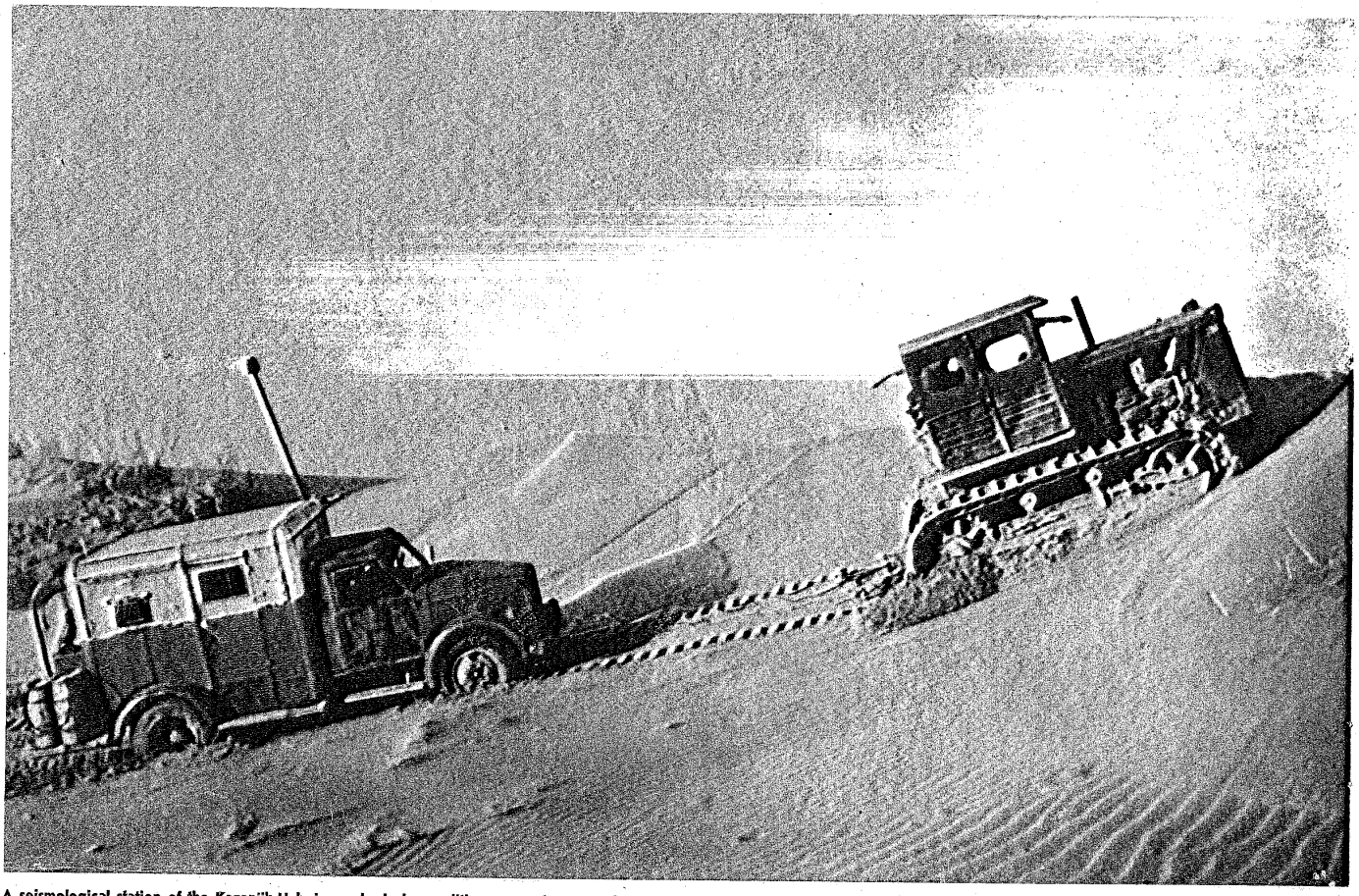
Parts for prefabricated houses delivered at Kazanjik. Not only homes, but cultural and other public service establishments, medical institutions, stores, canteens, bathhouses, laundries, etc., are being put up for the canal builders



Members of the Aral-Caspian expedition of the USSR Academy of Sciences are studying the soils and establishing the crops best suited for the lands that will receive water from the Main Turkmen Canal

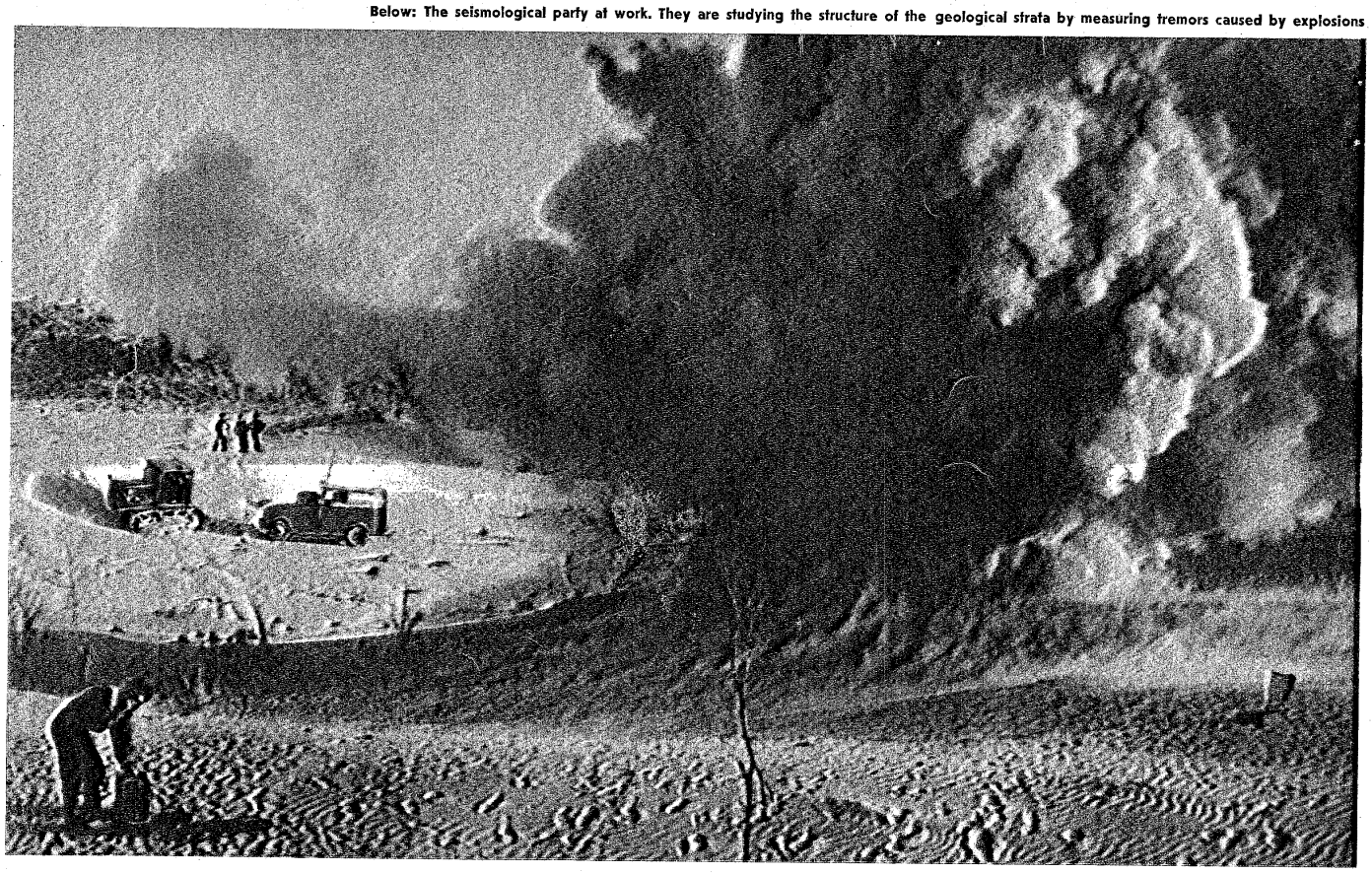
Excavators are at work straightening and widening the channel of the Soviet-Yab Canal, which is one of the old irrigation arteries now undergoing reconstruction in the area of the Main Turkmen Canal





A seismological station of the Kazanjik-Uzboi geophysical expedition moves to a new location. A tractor helps it negotiate the sand hills

Below: The seismological party at work. They are studying the structure of the geological strata by measuring tremors caused by explosions



supply has been considerably expanded. Indeed, the Soviet Land has seen to it that, like the other huge construction undertakings on the Volga and the Dnieper creating the material foundation of Communism, the great project in the Kara Kum lacks for nothing.

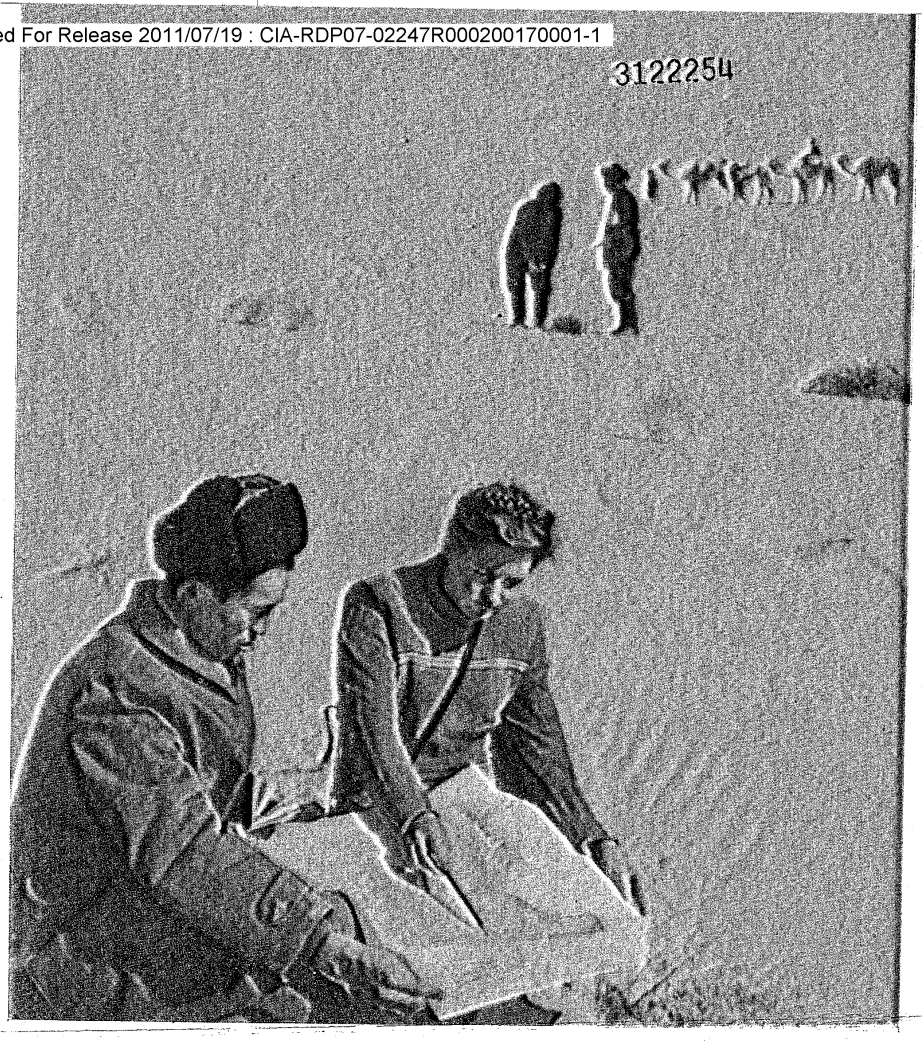
The workers of the Sormovo Works have delivered two powerful suction dredges ahead of schedule and are now assembling them on the spot. These machines herald the mighty fleet of dredges that will work on the Kara Kum canal job.

Soon the builders will be moving deep into the desert, and measures are already being taken to provide them with everything they need, water and housing, and machinery and building materials.

The men and women engaged on the job are fully aware of the great responsibility that rests upon them. With each passing day the number of workers distinguishing themselves on the job is growing. Prominent among the many who heve received bonuses for exceeding their plans for several months running are the proud holders of Excellent Workers' Pennants Rozy Taganov, a Turkmen bricklayer, and his entire team of young workers, and also carpenter Fedenev, joiner Valiev, and fitter Yangibayev.

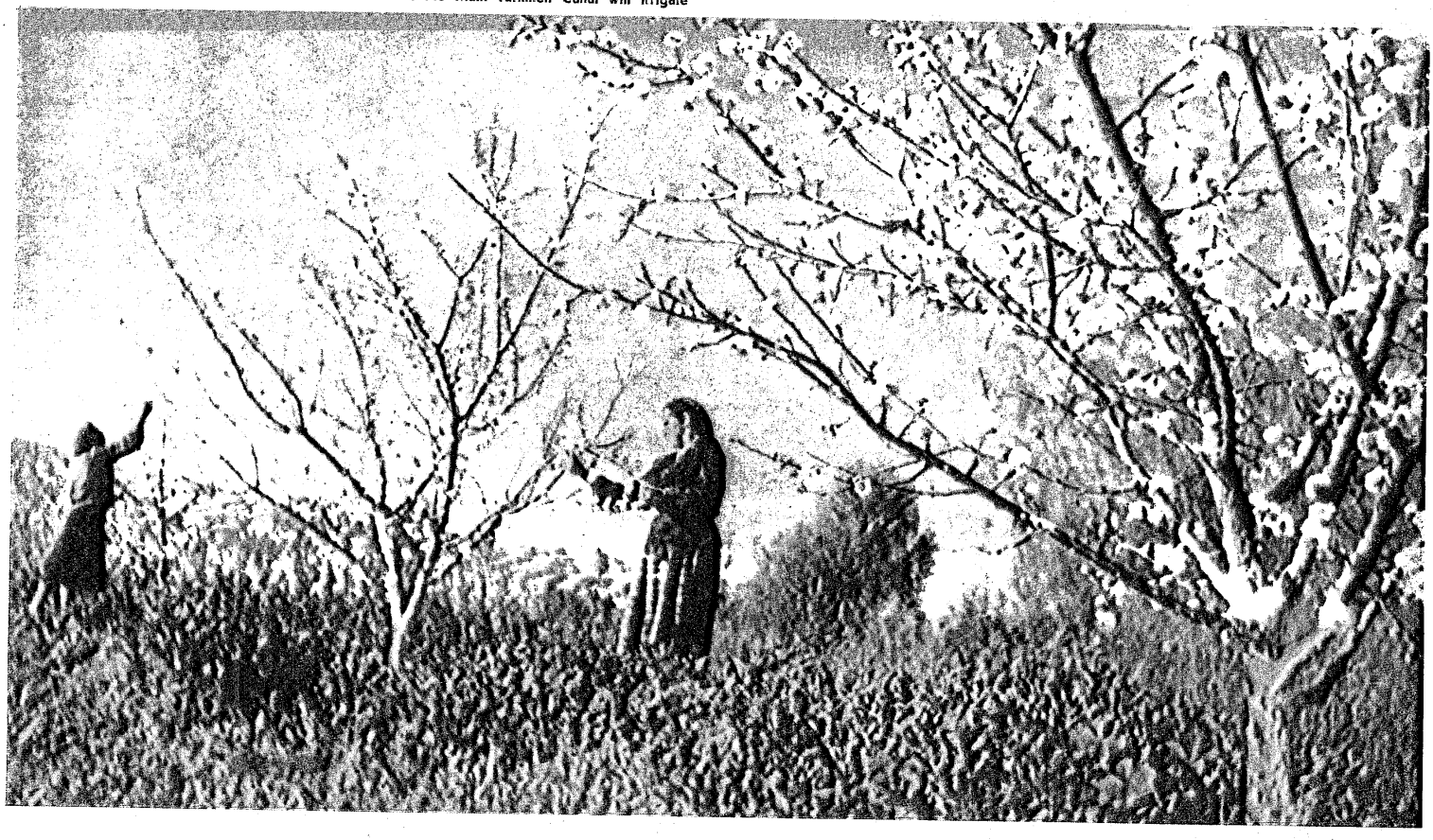
In March the railway builders completed the Urgench-Tahia Tash line as far as the Tahia Tash Station, and by the beginning of May the tracks reached the construction site. This greatly speeded up freight delivery to the builders. Soon a regular through passenger service between Moscow and Tahia Tash will be opened.

The builders of the Main Turkmen Canal are eager to complete the project—one of the greatest of the Stalin epoch—as quickly as they possibly can and thus bring water to the desert, which Soviet men and women will turn into a thriving, fertile land.

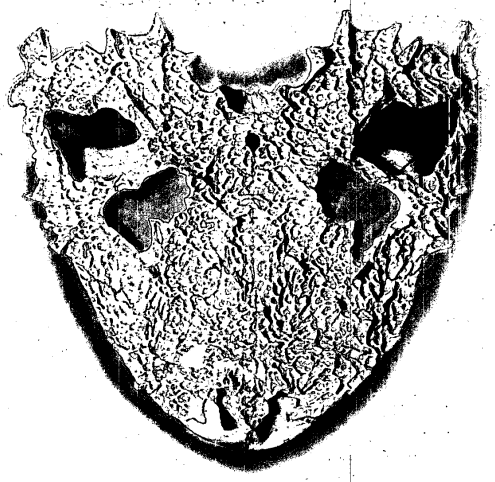


Anna Chekmaryova and Tulen Isafayev are afforestation experts. Here they are plotting out tracts earmarked for free planting along the canal

The experimental station of the USSR Plant Breeding Institute in Kara Kala is engaged on selection of subtropical fruits suitable for cultivation in soil the Main Turkmen Canal will irrigate



Professor Efremov (left), who was awarded a Stalin Prize in March of this year for his treatise "Taphonomia and the Geological Record," and Professor Flerov, director of the Museum of Paleontology of the USSR Academy of Sciences. Below is a skeleton of a Dinosaurus-Saurolophus, found by Soviet paleontologists in the Gobi Desert

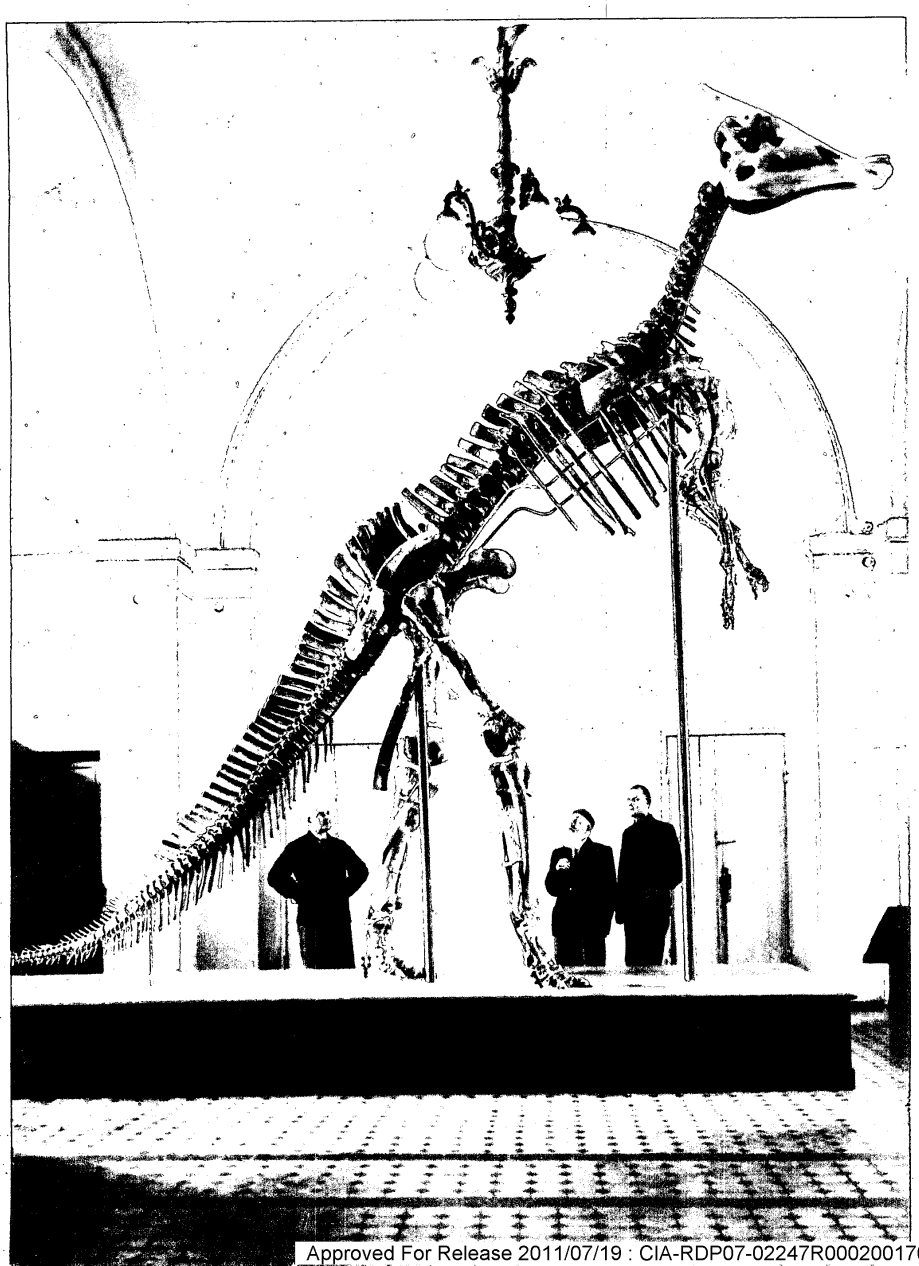


Skull of the (Batrachosauria), Lanthanosuchus, which lived some 200 million years ago. This skull in the collection of the Museum of Paleontology in Moscow is the only one in existence

200 MILLION YEARS AGO

By Professor J. EFREMOV,
Stalin Prize Winner

Photos by V. SHAKHOVSKOI



Fossilized remains of extinct animals and plants constitute a unique chronicle pregnant with meaning for the investigator.

Constantly changing in order to adapt themselves to their environment, assuming different forms in each era of the Earth's history, living organisms have gone through countless changes in the course of the hundreds of millions of years since they first made their appearance. This gradual development from the simple to the complex may be traced by the petrified remains of long-extinct organisms, by subjecting their structure to a detailed study and comparing them with existing species.

The study of the history of the animal and plant worlds has an immediate bearing on practical geology today and serves to promote the further development of our country's Socialist economy. Knowing the order in which diverse living organisms came into being, we can establish by the structure of their remains the geological age of the deposits in which they are found and determine the order of stratification, which is of signal importance for the geological study of the country, the compilation of geological charts, and practical prospecting and development of mineral deposits.

In the vast multiformity of animal life both present and past the vertebrates occupy a relatively small but highly important place. Their complex organisms help the investigator to trace changes brought about in the process of adaptation, while their fossilized skeletons give us a general idea of their appearance and provide a visual illustration of the historical development of the animal world and its full conformity to the laws of materialist dialectics.

By studying the structure and purpose of diverse organs of an animal one can reconstruct a picture of the conditions in which it lived, the climate and geography of bygone ages. But just as it is possible to penetrate to the conditions of life of an organism on the basis of its structure so can we do the opposite—explain the structure of the given organism by an analysis of its environment. In other words, the geological data obtained by studying fossil "cemeteries"